

REMARKS

Reconsideration and allowance of the above-identified application are respectfully submitted. Claims 1-25 are currently pending. Claims 21-25 are new.

Applicants note with appreciation that the Examiner has indicated in the Official Action that claims 4, 6-11 and 17 contain allowable matter.

Applicants also note with appreciation that the Examiner has considered and made of record the documents submitted with the Information Disclosure Statement filed on January 31, 2005.

Claims 1 and 15 stand rejected under 35 U.S.C. § 102(e) as allegedly being anticipated by Otani (U.S. Patent Number 6,144,403). Prior to discussing this ground of rejection in detail, a brief summary of exemplary embodiments of the present invention is provided below in order to highlight some of the advantageous characteristics thereof.

Exemplary embodiments of the present invention describe using a digital camera to capture images, and for the digital camera to automatically determine whether the image to be captured is a document, e.g. a computer printout or information written on a whiteboard, or whether the image to be captured is a natural scene, e.g. any non-document image. Consider, for example, Figure 1 of the present application which illustrates a digital image capture device wherein the digital image capture device has an automatic document detection mechanism that automatically evaluates whether a scene is a document or a natural scene. The image is then captured and processed by either the document processing block if the image is a document, or the image is captured and processed by the natural scene processing block if the image is a natural scene. The document processing block can include a document specific camera control unit for providing camera settings to optimize the capture of a document, and a document image processing unit for applying image processing algorithms that are tailored for enhancing document images. The natural scene processing block can include a natural scene specific camera control unit for providing camera settings to optimize capture of a

natural scene, and an image processing unit for applying image processing algorithms that are tailored for enhancing natural scene images.

By way of contrast, the system of Otani, as illustrated in Figure 2 (and described in col. 6 lines 13 – 57), illustrates a video input portion that inputs images from a portrait camera 6 or a document camera 7 and includes a video editing portion. The document camera 7 is associated with both a camera-movement controller 101 which can pan and zoom, and a system controller 13 which can instruct the camera-movement controller 101. A video switch 103 switches between the document camera 7 and the portrait camera 6 under control of the system controller 13. Additionally, there are two document detection sections, one of which (102) is associated with detecting the size and orientation of a document placed on a document camera table. The other document detecting section (109) determines, by comparing images input from the document camera, whether a document has been placed on the table. The document detection section 109 performs this function by comparing images input from the document camera by a unit of frames, and also detects the changing of documents by the movement of documents on the table.

However, Otani is fundamentally different from these exemplary embodiments of the present invention in that Otani ascertains the presence of a document, e.g., by distinguishing a color of a document placed on the document table from the color of the document table itself. See, e.g., col. 6, lines 58-65. This fundamental difference between Otani and exemplary embodiments of the present invention results in a number of differences between Applicants' claimed combinations and Otani as detailed below.

A. Claim 1 – Otani fails to disclose “b) automatically determining whether the scene to be captured is a document based on the preview”

Applicants' independent claim 1 combination recites a method for capturing images for use in a digital camera comprising the step listed above, among other steps. In the Official Action the Examiner indicates that the claimed steps of automatically determining whether the scene to be captured is a document based on the preview corresponds to “successive images being captured and compared prior to the usable image capture”, referring to column 6, lines 39-42 and column 7, lines 57-58 of Otani. However, Applicants respectfully disagree. The cited sections of Otani describe a document detecting section that determines whether or not a document “is placed on the table”. See, col. 6, line 42 of Otani. By way of contrast, in Applicants' claim 1 combination, the determination is whether or not the scene to be captured is a document.

B. Claim 1 – Otani fails to disclose “c) when it is determined that the scene is a document, programming at least one camera control for document capture”

Applicants' independent claim 1 combination recites a method for capturing images for use in a digital camera comprising the step listed above, among other steps. In the Official Action the Examiner indicates that this claimed step corresponds to “zoom and focus are adjusted”, referring to column 8, lines 28-35, and column 11, lines 42-44 of Otani. However, Applicants respectfully disagree. In Otani, the paper size and orientation are determined, and then the camera is adjusted accordingly to match the overall image pickup region of the document and/or or to pick up an image in the zone of the document underneath the document camera. By way of contrast, in Applicants' claim 1 combination, when it is determined that the scene is a document, programming is performed for at least one camera control for document capture. The programming referenced by Applicants'

claim 1 combination is triggered by the determination that a scene to be captured is a document, which does not occur in Otani.

C. Claim 15 – Otani fails to disclose “b) an automatic document detection unit coupled to the preview unit for receiving the preview of the scene and responsive thereto for automatically determining whether the scene is a document”

Applicants' independent claim 15 combination recites an image capture system comprising the structure listed above, among other features. In the Official Action the Examiner indicates that this feature corresponds to “successive images being captured and compared prior to the usable image capture” in Otani, referencing column 6, lines 39-42 and column 7, lines 57-58 of that patent. However, Applicants respectfully disagree. The cited sections of Otani describe a document detecting section that determines whether or not a document is underneath a document camera. By way of contrast, in Applicants' claim 15 combination, the determination is whether or not the preview of the scene is a document.

D. Claim 15 – Otani fails to disclose “c) a document camera control unit for setting at least one capture parameter tailored for capturing documents when it is determined that the scene is a document”

Applicants' independent claim 15 combination recites an image capture system comprising the step listed above, among other features. In the Official Action the Examiner indicates that this claimed feature corresponds to Otani's zoom and focus adjustment, referencing column 8, lines 28-35, and column 11, lines 42-44 of Otani. However, Applicants respectfully disagree. In Otani, the paper size and orientation are determined, and then the camera is adjusted accordingly to match the overall image pickup region of the document and/or or to pick up an image in the

zone of the document underneath the document camera. By way of contrast, in Applicants' claim 15 combination, a document camera control unit sets at least one capture parameter tailored for capturing documents when it is determined that the scene is a document.

Accordingly reconsideration and withdrawal of the rejection of independent claims 1 and 15 under 35 U.S.C. § 102(e) over Otani are respectfully requested.

Claims 2-3, 14 and 16 stand rejected under 35 U.S.C. § 102(e) as being allegedly anticipated by Otani (U.S. Patent Number 6,144,403). It is respectfully submitted that these dependent claims are allowable for at least the reasons set forth above with respect to independent claims 1 and 15 from which they depend.

Claims 5 and 18 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Otani (U.S. Patent Number 6,144,403) in view of Peulen (U.S. Patent Number 6,333,640). The Examiner has correctly stated in the Official Action that Otani is silent with regard to detecting a document by classifying every pixel into one of three classes and counting the pixels in each class. However, Applicants respectfully disagree that it would have been obvious to one of ordinary skill in the art at the time the invention was made to have Otani's camera perform the document/non-document determination described by Peulen for at least the following reason. The system of Otani is concerned with whether or not a document is underneath the document camera, and uses a motion sensor to make this determination. Only Applicants' specification describes a camera which, among other things, determines whether a scene to be captured is a document. Therefore, there would have been no motivation to combine Otani and Peulen in the manner needed to arrive at Applicants' claims. Additionally claims 5 and 18 are allowable for at least the reasons set forth above with respect to claims 1 and 15 from which they depend. Accordingly reconsideration and withdrawal of the rejection of claims 5 and 18 under 35 U.S.C. § 103(a) over Otani are respectfully requested.

Claims 12 and 19 stand rejected under 35 U.S. C. § 103(a) as being unpatentable over Otani (U.S. Patent Number 6,144,403) in view of Braica (U.S. Patent Application Number 2002/0097439) and Nako (U.S. Patent Number 5,940,544). The Examiner has correctly stated in the Official Action that Otani is

silent with regard to performing document-specific image processing. However, Applicants respectfully disagree that it would have been obvious to one of ordinary skill in the art at the time the invention was made to have Otani's camera identify, sharpen, and darken the edge pixels, as allegedly described by Braica and to then have the image processor of Braica also perform luminance correction as described by Nako. The system of Otani is concerned with whether or not a document is is underneath the document camera, and uses a motion sensor to make this determination. Only Applicants' specification describes a camera which determines whether a scene to be captured is a document. Therefore, there would have been no motivation to combine Otani, Braica and Nako in the manner needed to arrive at Applicants' claims. Additionally claims 12 and 19 are allowable for at least the reasons set forth above with respect to claims 1 and 15 from which they depend. Accordingly reconsideration and withdrawal of the rejection of claims 12 and 19 under 35 U.S.C. § 103(a) over Otani in view of Braica and Nako are respectfully requested.

Claims 13 and 20 stand rejected under 35 U.S. C. § 103(a) as being unpatentable over Otani (U.S. Patent Number 6,144,403). Claims 13 and 20 are allowable for at least the reasons set forth above with respect to claims 1 and 15 from which they depend. Accordingly reconsideration and withdrawal of the rejection of claims 13 and 20 under 35 U.S.C. § 103(a) over Otani are respectfully requested.

New claims 21-25 have been added by way of this response in order to provide additional claim coverage for the present invention. More specifically, Claim 21 refers to an exemplary embodiment of the present invention wherein the step of automatically determining whether the scene to be captured is a document further comprises the step of evaluating pixels of the preview of the scene to be captured to determine whether the scene to be captured is a document or whether the scene to be captured is a natural scene. Claim 22 refers to an exemplary embodiment of the present invention wherein if based on the evaluating step, the scene to be captured is a natural scene then a camera control unit optimizes camera settings for capturing a natural scene and an imaging processing

unit applies image processing algorithms tailored for enhancing natural scenes to the natural scene.

Additionally independent claim 25 refers to an exemplary embodiment of the present invention wherein a method for capturing images in a digital camera comprising the steps of: receiving a digital preview of a scene to be captured; image processing the scene to be captured by evaluating pixels associated with said scene to determine whether the scene is a document or a natural scene based on the preview; programming at least one camera control for document capture if it is determined that the scene is a document; programming at least one camera control for natural scene capture if it is determined that the scene is a natural scene; and capturing the scene with the programmed camera control.

All of the objections and rejections raised in the Official Action having been addressed, it is respectfully submitted that the present application is in condition for allowance and a notice to that effect is earnestly solicited. If the Examiner has any questions regarding the foregoing, he is invited to contact the undersigned at (540)-361-1863 to expedite prosecution of this application.

Respectfully submitted,

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